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ABSTRACT

This study was designed to answer the following three questions: (1) Are infants' first words always context-bound when they are initially acquired? (2) Do mothers use infants' first words in a context-bound manner when interacting with their infants? (3) What relationship, if any, exists between infants' initial use of early words and mothers' use of the same words when she interacts with her infant? Four firstborn infants, who came from homes in which English was the only language spoken, participated in the study. Observations took place once a month while the infant was between 6 and 10 months of age and once a fortnight when the infant was between 10 and 24 months of age. Each mother-infant pair was video-recorded through a one-way mirror in sessions lasting 20 minutes. Mothers were asked to keep a diary of all new sounds, words, or phrases that their infants produced. Findings indicated that infants' first words were not always context-bound, mothers did not always use infants' first words in a context-bound manner, and, while infants' initial use of a particular word usually bore a close resemblance to the most frequent maternal use of that word, at least three major types of relationships linked mother's most frequent use and infant's first use of a word. (RH)

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THE FIRST WORDS OF THE INFANT: THEIR CHARACTERISTICS AND THEIR RELATIONSHIP TO MATERNAL SPEECH

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Aims of the study

The study was designed to answer the following three questions:

(i) Are the infant's first words always context-bound when they are initially acquired, or are these words sometimes used by the infant in a contextually flexible manner?

(ii) Do mothers use infants' first words in a context-bound manner when they interact with their infants, or do mothers produce these words in a variety of different behavioural contexts?

(iii) What relationship, if any, exists between the infant's initial use of these early words and the mother's use of these same words when she interacts with her infant?

Method

Subjects

Four first born infants, who came from homes where the only language spoken was English. Three of these infants were female, and the other was male.

Procedure

Observations took place once a month while the infant was aged between 6 and 10 months, and once a fortnight between 10 and 24 months. Each mother-infant pair was video-recorded through a one-way mirror in a room containing a variety of toys, books, floor cushions, and pictures on the walls. Each recording session lasted for 20 minutes.

The mothers were also asked to keep a diary record of all new sounds, words or phrases which their infants produced. This record was made on prepared sheets which had spaces for the sound, word or phrase,

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a description of the situation in which it was uttered, the infant's accompanying behaviour, and the mother's interpretation of what her infant was trying to communicate. Detailed written instructions were given to each mother; these emphasized that she should try to make a note whenever a new sound, word or phrase was first produced, and whenever an old form was used in a new way.

Analysis

Both the video-recordings and the diary records were used to identify the first words which were produced by the infants. Two alternative criteria were employed to identify a vocalization as a word:
(a) Using the video-recordings alone. This criterion required that at least three instances of the vocalization should be observed during the recording sessions. These three instances had to display a relatively consistent phonetic form, and a consistency of usage with respect to particular objects or actions in a way which indicated that the vocalization was indeed a word and not merely a frequent but random babble.
(b) Using the diary records and the video-recordings together. This criterion required that the vocalization should be reported by the mother in the diary records as a word, and that at least one phonetically similar and behaviourally consistent vocalization should be observed in the recording sessions.

When a vocalization reached one or other of these two criteria to be classified as a word, the analysis proceeded as follows. Firstly, a full transcription was made of all the behavioural contexts in which the word had been used by the infant up to the point where criterion was reached. This transcription was carried out independently by two observers, and in the rare cases of minor disagreement, the disagreement was resolved by a reinspection of the video-tapes. This procedure therefore yielded information about the range of contexts in which the infant had first begun to use that word. Secondly, once a vocalization had reached criterion, all of the mother's speech which was produced during the two preceding recording sessions was then transcribed. In addition, where a word reached criterion in a recording session, all maternal speech in that session which preceded the infant's criterion utterance was also transcribed. Using these transcripts, all maternal uses of that particular word in those sessions were identified. Any instances in which the infant was obviously not attending to the mother were then excluded. Finally, a detailed transcription was made of all the remaining contexts in which the mother had used that word in those sessions. Thus, this procedure yielded information about the range of contexts in which the mother used the target word (while the infant was attending) in the period preceding the point at which the infant's use of that word reached criterion.

Results

(i) The infant's first words

The first 10 words produced by each infant were examined. These 40 target words consisted of three different types of word: context-bound words, nominal words, and non-nominal words. Context-bound words were produced by the infant in just one particular behavioural context; for example:

Word	Contexts of use
mummy	C handing toy to M
wee	C throwing soft cube in the air

Nominal words were produced by the infant in two or more different behavioural contexts but always with a consistent reference to a physically present object; for example:

Word	Contexts of use
teddy	C looking at/pointing to/touching/ playing with big teddy
shoes	C looking at picture of shoes in book/ pointing at her own shoes/holding toy shoes

Non-nominal words were also produced by the infant in two or more different behavioural contexts but these words were clearly not object names; for example:

Word	Contexts of use
more	C holding out empty bowl C bringing empty bottle to M and leading her into kitchen C reaching for drinking cup before having another drink C reaching into toybox and taking out more bricks
no	C refusing a drink, pushing it away C crawling to step which she knows she is not allowed down C refusing to comply with request by M

Classifying the 40 target words into these three categories, it was found that there were:

22 context-bound words
14 nominals
4 non-nominals

Thus, the answer to the first question (are the infant's first words always context-bound?) is no.

(ii) The mother's use of the infant's first words

Of the 40 target words, only 6 were used in an invariant manner by the 4 mothers; for example:

Word	Contexts of maternal use
buzz	6 x M pointing to picture of bee on frieze No other instances of use
boo	3 x M sees C hiding behind curtain No other instances of use

The other 34 target words were all used by the mothers in 2 or more different behavioural contexts; for example:

Word	Contexts of maternal use
there	6 x M pointing up at pictures on frieze 3 x M pointing at pictures in book 2 x C crawling to/looking into mirror 2 x M talking into telephone receiver 8 other single instances of use
ball	3 x M showing C picture of ball in book 2 x C playing with ball 2 x M pointing to ball No other instances of use

Thus, the answer to the second question (do mothers use infants' first words in a context-bound manner?) is no.

(iii) The relationship between the infants' and the mothers' word uses

To find out the nature of this relationship, we first listed, for each of the 40 target words, the infant's use followed by all the different maternal uses of that word. In this list, we then identified, for each individual target word, that particular maternal use which bore the closest resemblance to the infant's use. This procedure therefore yielded a list looking like this (in which the most closely related maternal uses are underlined):

Word	Contexts of use
mummy	C: C handing toy to M
	M: 3 x M has hands out to C as C hands her a toy 2 x M is pulling an object along behind herself 3 other single instances of use
go	C: C looking at toy car on floor after mechanism has been activated
	M: 8 x C looking at toy car on floor after mechanism has been activated 3 x C getting down off M's knee 3 x C climbing about on chair 3 x M asking C about positioning of cushion 14 other less frequent instances of use
boo	C: C hiding behind curtain
	M: 3 x M sees C hiding behind curtain No other instances of use

This procedure revealed that for 33 out of the 40 words, it was the mother's most frequent use of the word which bore the closest resemblance to the infant's use of that word (as in all three of the examples above). In the case of 4 further words, the infant's use resembled one of the less frequent maternal uses, while in the remaining 3 cases no relationship at all was apparent between the infant's use and any of the maternal uses.

In the three examples given above (mummy, go and boo), the infant's use of the word occurred in exactly the same behavioural context as the mother's most frequent use. However, this did not always occur; for example:

Word	Contexts of use
there	C: C pointing up at pictures on frieze
	M: 6 x M pointing up at pictures on frieze 3 x M pointing at pictures in book 2 x C crawling to/looking into mirror 2 x M talking into telephone receiver 8 other single instances of use
here	C: C giving object to M
	M: 2 x M holding out object for C to take 1 x M picks object up 1 x M patting her legs and asking C if she would like to sit with M No other instances of use

In the former 3 examples (mummy, go and boo), the mother used the word most frequently while the infant was performing a particular action; the infant subsequently began to use the word while he or she was performing that same action. However, in these 2 examples (there and here), the mother used the word most frequently while she was performing a particular action; the infant subsequently began to use the word not while the mother but while the infant was performing that action.

A third type of relationship between infant and maternal word uses was also exhibited in the data; for example:

Word	Contexts of use
ball	C: C pointing at/picking up ball
	M: 3 x M showing C picture of ball in book 2 x C playing with ball 2 x M pointing to ball No other instances of use
doggy	C: C handling piece of doggy puzzle/pointing at picture of doggy on puzzle box
	M: 3 x C handling doggy puzzle box 1 x M picking up pieces of doggy puzzle 1 x M pointing to completed doggy puzzle No other instances of use

In these examples, the mother most frequently used the word in a variety of different behavioural contexts which shared some sort of common element; the child subsequently used the word also in a variety of different

behavioural contexts which shared that same common element. This third type of relationship was exhibited by most of the nominals and non-nominals.

Categorizing the 40 target words according to the type of relationship which they exhibited yielded the following picture:

10 words	M uses word when C performs action C uses word when C performs same action
8 words	M uses word when M performs action C uses word when C performs same action
15 words	M uses word in a variety of different behavioural contexts which share a common element C uses word in a variety of different behavioural contexts which share the same common element
4 words	Other types of relationship, each of which occurred only once
3 words	No relationship apparent

Thus, the answer to the third question (what is the relationship between the infant's and the mother's use of the infant's first words?) is that the infant's initial use of a particular word usually bears a close resemblance to the most frequent maternal use of that word; however, there are at least three major types of relationship which can pertain between that most frequent maternal use and the infant's initial use of the word.